Lesson 3:

**In this third lesson your going to look at**

**Nutrition/Feeding levels**

Students can

·         List various feeds commonly used on NZ farms.

·         Explain how feeds are assessed according to the energy that they contain.

·         Compare/Rank feeds according to their typical energy value(or relative to leafy pasture)

          Explain the effect of the level of nutrition/feed intake on Growth, Development and

            Productivity.

Rate of Liveweight gain and carcass development are affected by both feed quantity and feed quality. In order for young animals to achieve high liveweight gain and normal development, animals need access to adequate quantities of high quality feed.

 **Feed Budgeting**

Feed budgeting is a tool that allows you to match the feed requirements of the stock with the amount of feed grown or bought. It helps you to have greater control of the grazing management on the farm. As with any budget the feed budget has inputs and outgoings and the totals, including any surplus or deficit, at the bottom must always be equal.

            **Feed Supply                                       Feed Demand**

                                                Kg DM                                                            Kg DM

Pasture on hand   =                             Animal requirements  =

Expected growth =

Supplements        =

Deficit                 =                              Surplus                                                =

                        **Total                                                                           Total**

You are always going to end up with a surplus or a deficit. You then have to decide the best thing to do.

Budgets should be done regularily so that you can plan ahead and make decisions about.                                                                                    When to dry off

                                                                                    Obtaining grazing

                                                                                    Buying suppliments

                                                                                    Selling stock

                                                                                    Making suppliments

                                                                                    Buying more stock

                                                                                    Getting grazers

### [Matching Feed supply to animal demand](http://www.mcglashan.knowledge.net.nz/index.php?control=database_file&record_id=mcglashan:238847" \t "_blank)

### [Pasture Supply](http://www.mcglashan.knowledge.net.nz/index.php?control=database_file&record_id=mcglashan:238852" \t "_blank)

### [Animal Needs](http://www.mcglashan.knowledge.net.nz/index.php?control=database_file&record_id=mcglashan:238851" \t "_blank)

**Comparative Feed Value**

**Definition of headings used in table**

%DM;  The Dry Matter content of feed. Dry matter is the weight of the feed less the water content.

ME concentration: This is the Metabolisable Energy of the feed. It represents Mega Joules (MJ) of Metabolisable Energy per Kilogram of dry matter of feed.

Kg of Feed Dry Matter; This figure provides an estimate of the amount of feed required (kg DM) to provide the same quantity of ME as is contained in one kilogram (DM) of mixed length leafy ryegrass/white clover. It is a comparison of the feed with good pasture.

% Crude Protein; This is the % of Crude Protein in 1 Kilogram of feed dry matter. For example green lucerne contains 28% crude protein per kilogram of dry matter. Expressed another way, this figure equates to 280 grams of crude protein per kg of DM.

Feed                            %DM              ME                  kgDM              %Protein

**Pasture**

Spring, Leafy                15                    11                    1                                  25

Summer, leafy              19                    10.5                 1.05                             15

Summer, dry                28                    8                      1.38                             10

Autumn, leafy              15                    10.8                 1.02                             25

Winter                         14                    11.2                 0.98                             26

Lucerne                       20                    11                    0.96                             28

**Silage**

Grass (wilted)               30                    10                    1.16                             20

Lucerne                       20                    10                    1.16                             20

Maize                          35                    10.5                 1.06                             8

**Hays**

Pasture (good)             85                    9                      1.22                             14

Pasture (Medi)             85                    8                      1.38                             11

Pasture (Poor)             85                    7                      1.57                             8

Straw                          85                    7.5                   1.42                             6

**Crops**

Turnips                         13                    13                    0.83                             19

Rape                            17                    12                    0.92                             16

Kale                             15                    12                    0.92                             20

Maize                           23                    10                    1.07                             10

Swedes                        15                    13                    0.86                             15

Tama                           15                    11                    0.96                             23

Oats                             20                    12                   1.02                             15

**Concentrates**

Maize meal                  86                    13.9                 0.79                             10

Wheat, Barley              86                    13                    0.85                             12

Peas                           86                    13                    0.85                             30

Meat meal                   94                    10.7                 1.03                             50

|  |
| --- |
| select typical feeds and their feed values that stock in their area may be utilising. Place in a table or similar format. They then needs to be able to explain why different feeds have different feed values. |

**Animal feed requirements**

The animal feed requirements in the following tables assume that they are being grazed on relatively easy country, in a moderate climate and with water in close proximity. If they are being grazed on harder country e.g. steeper, colder country, which will have less subdivision, feed requirements will increase. If they are on intensive well subdivided properties that involve less walking, etc , feed requirements will decrease.

Feed requirements for different classes of stock are easily compared using the **stock unit**system. The stock unit (s.u.) conversion relates the energy requirements of various classes of stock to the requirements of one 55kg breeding ewe producing one lamb per year.

One stock unit requires 1kg DM/ day for maintenance.

**Stock Unit table**

|  |  |
| --- | --- |
| **Sheep** Breeding eweHoggetRam HoggetRam **Cattle** CalfRising 1 yr heiferRising 2 yr heiferBreeding cowRising 1 yr steerRising 2 yr SteerRising 3 yr steerBullDairy cow (Jersey)Dairy cow (Friesian) | **SU** 1.00.71.00.8   2.03.54.56.04.05.05.55.57.58.5 |

**Feeding requirements of sheep for optimum production**

1.      **Flushing – The increased feeding of ewes at tupping**/**mating.**

Every 1 kg of liveweight gain of ewes at tupping/mating should result in approximately 3% more lambs weaned. Ideally ewes should be ‘flushed’, with a feeding level of 1.5 times maintenance, three weeks prior to the introduction of the ram, through to one week after the withdrawal of the ram. At this feeding level the ewes should gain approximately 1kg every 10 days.

|  |  |
| --- | --- |
| **Initial Ewe Liveweight** | **Kg DM/head/day** |
| 45kg 55kg | 1.20  to 1.28 1.35 to1.5 |

2.      **Early to mid pregnancy,**(2-3 months before lambing) foetal lamb(s) have little effect on ewe feed requirements. Ewes are typically fed maintenance providing they are at the required liveweight.

|  |  |  |
| --- | --- | --- |
| **Ewe liveweight** | **3 mths before lambing** | **2 mths before lambing** |
| 45kg 55kg 65kg | 0.89-0.90 kg DM/day 0.95 –1.05 1.10 –1.20 | 0.90 –0.95kg DM/day 1.0 –1.10 1.15 –1.25 |

3.      **Late winter/ start of lambing,** During the last 6-8 weeks of pregnancy, the growth of the foetal lamb(s) place extra requirements on the ewes feed requirements. If the extra feed requirements are not met, the ewes body reserves are used to provide for the foetus and there is the risk of pregnancy toxemia (sleepy sickness) and hypocalcaemia (milk fever).

|  |  |  |  |
| --- | --- | --- | --- |
| **Ewe liveweight** | **1 mth before lambing** | **2 wks before lambing** | **Start of lambing** |
| 45 kg 55 kg 65 kg | 1.05 –1.10 kg DM/day1.15 –1.25 1.30 –1.40 | 1.15-1.20 kg DM/day1.25-1.35 1.40-1.50 | 1.30-1.35kg DM / day1.40-1.50 1.55-1.65  |

**Twin bearing ewes require 20 to 25% more feed**

After the ewe has lambed feed three times her normal maintenance, e.g. a 55 kg ewe with one lamb will require 3 kg DM per day up to weaning

6. **Feed requirements for dairy cows**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cow Liveweight | 1.7 kg M.S. (18-25 litres of milk) | 1.4 kg M.S. (15-20 litres) | 1.0 kg M.S. (11-15 litres) | 0.7 kg M.S.   (7-10 litres) |
| 370 kg (J) 470 kg (F) | 15 kg DM/day 17kg DM/day | 13 15 | 11 12 | 9 10 |

|  |
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|   |

### lamb growth

|  |  |
| --- | --- |
| Initial Liveweight | **Growth/Liveweight Gain (g/ day)**  |
|  0 gain |  100g |  150g |  200g |  300g |
| 20kg 30kg 40kg | 0.55-0.6kg 0.75-0.80kg 0.95-1.0kg | 0.85kg 1.2kg 1.45kg | 1.0kg 1.35kg 1.7kg | 1.15kg 1.55kg 1.9kg | 1.4kg 1.9kg 2.35kg |

**5. Daily feed requirements of young growing beef Steers.(kgDM/head/day)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Initial Liveweight (kg) | Nil gain | 0.25kg/day gain | 0.50 | 0.75 | 1.0 | 1.25 | 1.5 |
| 100 150 200 250 300 350 400 450 500 | 2.0 kg DM/Day2.5 3.0 3.5 4.0 4.4 4.8 5.3 5.7 | 2.4 kg DM/day3.0 3.7 4.3 4.9 5.5 6.0 6.5 7.0  | 2.8 kg DM/day3.6 4.4 5.1 5.8 6.5 7.1 7.8 8.4 | 3.2 kg DM/day4.2 5.1 5.9 6.7 7.5 8.3 9.1 9.8 | 3.7 kg DM/day4.8 5.8 6.7 7.7 8.6 9.5 10.4 11.2 | 4.1 kg DM/day5.3 6.5 7.6 8.7 9.7 10.7 11.7 12.6 | 4.6 kg DM/day5.9 7.2 8.5 9.7 10.8 11.9 13.0 14.0 |

For heifers add 5% to the above table

 For bulls deduct 5% from the above table

### Use the Animal Feed requirements handout (or the Dexcel Farm fact 5-24 or a similar data sheet) to produce a summary of the effects of different feeding levels on liveweight growth (sheep and beef), milk production and ovulation rates in sheep. (Use data from the sheets to ‘back up’ their statements).

### Emphasise that meat/muscle is protein and that excess energy/food intake is converted by the animal into fat.

[Dexcel FarmFact  5-24 Feed Requirements of Dairy Calves and](http://www.mcglashan.knowledge.net.nz/index.php?control=database_file&record_id=mcglashan:238844" \t "_blank)